



US009410385B2

(12) **United States Patent**
Childers et al.

(10) **Patent No.:** **US 9,410,385 B2**
(45) **Date of Patent:** ***Aug. 9, 2016**

(54) **SIMULTANEOUS TUBULAR HANDLING SYSTEM**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 113 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **14/082,485**

(22) Filed: **Nov. 18, 2013**

(65) **Prior Publication Data**

US 2014/0110174 A1 Apr. 24, 2014

Related U.S. Application Data

(63) Continuation of application No. 13/467,316, filed on May 9, 2012, now Pat. No. 8,584,773, which is a continuation of application No. 12/807,356, filed on Sep. 2, 2010, now Pat. No. 8,186,455, which is a continuation of application No. 11/710,638, filed on Feb. 23, 2007, now Pat. No. 7,802,636.

(51) **Int. Cl.**
E21B 19/20 (2006.01)
E21B 19/15 (2006.01)

(52) **U.S. Cl.**
CPC **E21B 19/20** (2013.01); **E21B 19/155** (2013.01)

(58) **Field of Classification Search**

CPC E21B 19/14; E21B 19/15; E21B 19/155; E21B 19/20

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,776,605 A 9/1930 Tibbetts
1,829,879 A 11/1931 Stephens

(Continued)

FOREIGN PATENT DOCUMENTS

AU 2007347399 A1 8/2008
AU 2007347399 B2 8/2008

(Continued)

OTHER PUBLICATIONS

Intellectual Property Office of Singapore letter dated Feb. 13, 2015 transmitting Examination Report dated Jan. 29, 2015 corresponding to the present invention Singapore Application No. 2012010047; PCT/US2007023502, Applicants Atwood Oceanics Inc and Friede Goldman United, Ltd. (our matter 125SG1) (8 pages).

(Continued)

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(57) **ABSTRACT**

A system and method for building and handling oilfield tubular stands while drilling operations are simultaneously and independently occurring with one drilling deck, one derrick, and one rotary system. An offline guided path horizontal to vertical arm lifts and moves in the same plane tubulars stored horizontally on the catwalk and positions the tubulars vertically directly into a preparation hole for assembling and disassembling tubular stands while online drilling operations are simultaneously being conducted. A stand arm lifts and lowers the tubulars into and out of the adjustable preparation hole, and transports the tubulars for storage to an auxiliary tubular racking station in the upper part of the derrick. A bridge racker crane moves tubular stands from the auxiliary tubular racking station to the top drive or another tubular racking station.

20 Claims, 27 Drawing Sheets

